Epitomes

Important Advances in Clinical Medicine

Neurology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in neurology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in neurology that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Neurology of the California Medical Association and the summaries were prepared under its direction.

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Neurologic Consequences of Designer Drugs

WHAT ARE "designer drugs"? Most simply put, they are analogs of controlled substances (or CSAs, as we now call them). Historically, they can be viewed as the penultimate result of the synthetic drug revolution that began in the 1960s with LSD and phencyclidine hydrochloride (PCP). These new compounds are legal to possess, cheap to produce and do not have to be imported. The subject is a timely one in view of current efforts to stem the flow of illicit narcotics into the United States. If successful, this well-intended effort is likely to result in an explosion of domestically produced "synthetics." These compounds can be sold under almost any guise, including heroin, cocaine and even as marijuana (parsley laced with PCP).

There are three reasons why physicians should be concerned. Some of these compounds are extraordinarily potent, increasing the risk of overdose, particularly in the hands of a novice. One of the fentanyl analogs sold on the street, for example, is known to be 1,000 times more potent than morphine. Second, to the best of my knowledge, none of the "kitchen chemists" has ever been credited with testing a newly synthesized product on laboratory animals before releasing it for human consumption. Hence, the danger that a new toxin may "hit the street" is ever constant. Finally, quality controls are lacking. Bad batches are usually first discovered when addicts get sick.

Given the foregoing, it is not surprising that CSAs have spawned a rapidly developing branch of neurotoxicology. The first selective neurotoxin sold in California as heroin was 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (now widely known as MPTP), which appeared on the streets in 1982. MPTP selectively destroys the zona compacta of the substantia nigra and causes parkinsonism in its victims. Although there are only seven known severely involved patients with MPTP-induced parkinsonism, epidemiologic evidence suggests that more than 500 young addicts may have injected MPTP under the impression it was heroin. Hence, MPTP-induced parkinsonism should be considered in the differential diagnosis of any person with an early case of parkinsonism and a history of drug abuse.

Parkinsonism is not the only neurologic complication to result from the increasing flow of synthetic street drugs. In the past six months more than 20 cases of chorea of varying duration have been identified in persons abusing amphetamine. While amphetamine-induced chorea has been reported previously, it is rare, and the sudden appearance of a number of new cases has raised concern that a much more potent, new "designer" amphetamine may have appeared on the drug scene. Efforts are currently under way to further characterize this syndrome and identify the offending agent. For the moment, however, the acute onset of chorea in young adults should at least raise the question of amphetamine-analog abuse.

There are other analogs of amphetamine that may be equally worrisome. Methamphetamine, MDA (3,4-methylenedioxyamphetamine) and MDMA (3,4-methylenedioxymethamphetamine; "ecstasy") appear to be neurotoxic, causing prolonged depletion of serotonin and nerve terminal degeneration in the striatum and hippocampus of laboratory animals. While the clinical implications of these effects have yet to be determined, these observations provide one more cause for concern regarding the effects of synthetic drug abuse.

If there is a message in all of this, it is that physicians need to be increasingly aware of the medical hazards of the synthetic drug revolution that appears to be rapidly descending on us.

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Immunotherapy in Multiple Sclerosis

MULTIPLE SCLEROSIS remains a disorder of unknown pathogenesis despite decades of research. Current immunologic studies imply both humoral and cellular immune dysfunction. These findings have raised the possibility of an autoimmune basis for this disease, but conclusive proof is lacking. The presumed immune dysfunction, however, forms the basis for